

unpatentable over Andersson in view of unspecified “knowledge generally available to one of ordinary skill in the art.”

In this response, Applicants traverse the §102(e) and §103(a) rejections, and respectfully request reconsideration of the present application.

As noted above, each of the independent claims 1, 8, 15, 17 and 18 stands rejected under §102(e) as being anticipated by Andersson.

Applicants initially note that MPEP §2131 specifies that a given claim is anticipated “only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference,” citing Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, MPEP §2131 indicates that the cited reference must show the “identical invention . . . in as complete detail as is contained in the . . . claim,” citing Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants respectfully traverse the §102(e) rejection on the ground that Andersson fails to teach or suggest each and every limitation of at least independent claims 1, 8, 15, 17 and 18, as will be described in greater detail below.

With regard to claim 1, this claim is directed to a wireless communication system base station having a plurality of channel unit boards. Each of the channel unit boards includes a plurality of channel elements for providing processing operations for signals assigned to multiple carriers of the communication system. In addition, the claim specifies that each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system.

The present invention as set forth in claim 1 is directed to a type of multi-carrier channel pooling arrangement which is distinct from the conventional single-carrier channel pooling arrangements of the prior art. The claimed arrangement can be configured in an illustrative embodiment to provide numerous advantages relative to conventional single-carrier channel pooling, as is described as follows in the specification at page 8, lines 14-24:

Advantageously, the above-described multi-carrier/multi-sector channel pooling arrangement provides substantially improved flexibility relative to the conventional single-carrier/multi-sector approach. More particularly, the channel pooling of the present invention allows any channel element to be assigned to any carrier sector in the system. For example, the channel pooling of the present invention can allow all the channel elements of a given channel unit board to be assigned to a single carrier, or each channel element to be assigned to a different one of K carriers, where $K \leq N$, or any of a number of other combinations. The invention can thus allow a given base station design to support different wireless communication standards using the same base station hardware. The invention also protects the investments of base station equipment purchasers, by allowing existing equipment to be easily and efficiently upgraded to provide additional capacity, or to support changes in operating standards.

The Examiner has asserted at page 6, section 8 of the final Office Action that Applicants in discussing the above-noted illustrative embodiment are relying upon features that are "not recited in the rejected claim(s)." Applicants wish to point out that they are simply providing the discussion of the illustrative embodiment in order to show an example of one possible implementation of the invention that meets the limitations of claim 1, so that the Examiner can better understand what those limitations mean.

The argument advanced by Applicants does not rely in any way on the details of the illustrative embodiment. As was indicated above and will be described in further detail below, what Applicants are arguing with regard to claim 1 is that Andersson fails to teach or suggest an arrangement in which each of the channel unit boards includes a plurality of channel elements for providing processing operations for signals assigned to multiple carriers of the communication system, and each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system.

The Examiner in formulating the §102(e) rejection of claim 1 argues that these limitations of claim 1 are disclosed by the Andersson reference. More particularly, the Examiner argues with reference to FIG. 9A of Andersson that the claimed channel unit boards correspond to the elements

BBTX-1, BBTX-2, . . . BBTX-N, and the claimed channel elements correspond to the resources within a given one of the BBTX units (Final Office Action, page 3, section 4). Applicants respectfully disagree. As noted above, in the present invention as set forth in claim 1, each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system. This limitation is not met in the portion of Andersson relied upon by the Examiner. For example, none of the resources in a given one of the BBTX units in Andersson FIG. 9A is assignable to each of a plurality of carriers of the system, as required by the express limitations of claim 1. Instead, a given one of these resources is associated with only one of the carriers of the system. This is apparent from FIG. 9A itself, which shows a different set of resources 1 through M6 being associated with each of the carriers 1 through N1. Moreover, the associated description at column 10, lines 14-15 specifically states as follows, with emphasis supplied:

In FIG. 9A, the BBTX hardware sub-unit (216) has a separate pool of BBTX resources for each carrier.

This is clearly a type of conventional single-carrier channel pooling, and fails to anticipate the multi-carrier channel pooling arrangement of claim 1.

The Examiner in the final Office Action at page 6, section 9 further argues with regard to claim 1 that the limitation specifying that “each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system” is “too broad.” More specifically, the Examiner at page 6, section 9 states as follows:

The claim language is too broad. How many are “at least a subset,” or “at least one of the channel unit boards”? As explained above, Andersson et al. entirely meets this limitation.

Applicants respectfully submit that there can be no legitimate question as to “how many” constitute “at least a subset of the channel elements” or “at least one of the channel unit boards” in the

limitation at issue. This language is absolutely clear and unambiguous on its face. The term “at least a subset of the channel elements” means any subset of the total set of channel elements, or in other words, one or more of the channel elements. The term “at least one of the channel unit boards” similarly means one or more of the channel unit boards. Applicants submit that one cannot reasonably question “how many” of the various elements are referred to in view of this clear and unambiguous language.

Moreover, as noted above, the limitation of claim 1 specifying that “each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system” is not met by Andersson. This limitation in effect requires that there be at least one channel element of at least one of the channel unit boards that is assignable to each of multiple carriers of the system. The resources Resource-1, . . . Resource-M₆ of BBTX 1 in FIG. 9A of Andersson, relied upon by the Examiner at page 6, section 9 of the final Office Action, are not assignable to each of multiple carriers of the system. Instead, as indicated previously herein and as is readily apparent from FIG. 9A, each of the carriers Carrier 1, . . . Carrier N1 has its own such set of resources Resource-1, . . . Resource-M₆.

Applicants therefore submit that independent claim 1 is not anticipated by Andersson. Dependent claims 2-7 are believed allowable for at least the reasons identified above with regard to claim 1.

With regard to independent claims 8 and 15, each of these claims includes limitations similar to those of claim 1, and is believed to be allowable for substantially the reasons identified above with regard to claim 1. Dependent claims 9-14 are believed allowable at least by virtue of their dependence from claim 8.

With regard to independent claims 17 and 18, each of these claims includes a limitation relating to the provision of a multi-carrier channel pooling arrangement. As indicated above, the BBTX units of the Andersson reference, specifically relied upon by the Examiner in formulating the §102(e) rejection, are not configured to provide a multi-carrier channel pooling arrangement. Instead, the BBTX units of Andersson are disclosed as providing a single-carrier channel pooling arrangement which includes “a separate pool of BBTX resources for each carrier” (Andersson, column 10, lines 14-15).

Independent claims 16, 19 and 24 stand rejected under §103(a) as being unpatentable over Andersson.

With regard to independent claim 16, this claim includes limitations similar to those of claim 1, and is believed to be allowable for substantially the reasons identified above with regard to claim 1.

With regard to independent claim 19, this claim calls for a base station having a plurality of channel unit boards each including a plurality of channel elements for providing processing operations for signals transmitted by the system, and a controllable signal combiner element coupled to at least a subset of the plurality of channel unit boards. The controllable signal combiner element implements an assignment of signals from each of at least a subset of the channel elements of a given one of the channel unit boards for transmission on one or more of a plurality of carriers of the system. The Examiner again relies on the BBTX units of Andersson as meeting the claimed channel unit boards (Final Office Action, page 5, fifth paragraph). As indicated above, the BBTX units of the Andersson reference are disclosed as providing a single-carrier channel pooling arrangement which includes “a separate pool of BBTX resources for each carrier” (Andersson, column 10, lines 14-15), and thus fail to meet the limitations of claim 19.

Dependent claims 20-23 are believed allowable for at least the reasons identified above with regard to claim 19.

With regard to independent claim 24, this claim is directed to a base station having a plurality of channel unit boards each including a plurality of channel elements for providing processing operations for signals received by the system. The claim further calls for a controllable selector associated with a given one of the channel unit boards and receiving as inputs a set of signals associated with a receive bus of the system, the controllable selector having a plurality of outputs, each coupled to a corresponding input of one of the channel elements of the given channel unit board. In addition, the controllable selector implements an assignment of received signals from each of a plurality of carriers of the system to each of at least a subset of the channel elements of the given channel unit board. The Examiner relies upon the arguments advanced with regard to claim 19 (Final Office Action, page 5, last paragraph). However, as indicated above, the arguments advanced

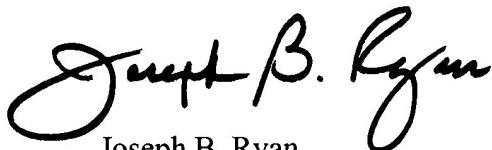
with regard to claim 19 rely on the BBTX units of Andersson, which fail to teach or suggest a multi-carrier channel pooling arrangement of the type claimed.

Dependent claims 25-27 are believed allowable for at least the reasons identified above with regard to claim 24.

In view of the above, Applicants believe that claims 1-27 are in condition for allowance, and respectfully request the withdrawal of the §102(e) and §103(a) rejections.

As indicated above, a Notice of Appeal is submitted concurrently herewith.

Respectfully submitted,



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Enclosure(s): Notice of Appeal